In re Patent Application of:
WESTPHAL
Serial No. **10/655,766**
Filed: **SEPTEMBER 5, 2003**
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REMARKS

Claims 1-12 remain in the application. Claims 1-12
stand rejected.

The Examiner rejected claims 1-12 under 35 U.S.C. §
102b as anticipated by Scholl et al. Applicant respectfully
request reconsideration of the Examiner's rejection.

Independent claims 1, 5 and 8 each include the
language "representing multilevel logic schema in vector
form." The Scholl et al. reference does not teach or suggest
this.

An example of a multilevel logic schema is one which
includes nested parenthetical expressions. None of those are
addressed in the Scholl et al. article. In such nested
parenthetical expressions, the order of resolution of a
particular parenthetical expression is important. Typically,
the innermost parenthesis of nested parenthetical expressions
are evaluated first before the next outermost set of
parenthesis can be evaluated. The Scholl et al. article does
not teach or suggest representing multilevel logic schema in
vector form.

Independent claims 3, 9, 10 and 12 as well as
dependent claims 2 and 7 recite "eliminating opposing
couples." Claims 4 and 12 both include the language "sliding
[the] symmetrical […] logic attached to opposing couples onto

point common to the opposing couples." All of the mentioned claims depend on the identification and use of opposing couples in the simplification process. The Scholl et al. article does not discuss or mention opposing couples at all. The Scholl et al. article does not teach or suggest that opposing couples should be eliminated or otherwise utilized. The Scholl et al. article does not provide any teaching or suggestion of how opposing couples could be eliminated or otherwise utilized.

Independent claims 1, 5, 8, and 11 include the language "by exploiting symmetries in the [a] logical schema." Claims 6 and 7 both refer to the system of claim 5. Claims 4 and 12 both include the language "sliding [the] symmetrical [...] logic attached to opposing couples onto a point common to the opposing couples." All of the mentioned claims depend on the use of symmetry in the vector representation of logical functions.

The symmetry to which the Scholl et al. article refers is exemplified by $f(xy)=f(yx)$. It is a matter of the symmetry of the function in cases when the order of variables in the argument changes. Symmetry in this sense applies to a function, regardless of the formula or vectors used to express it.

Symmetry, as referred to in the above-identified application, however, is a geometric property of a vector representation of a logical function. It applies solely to the

vectors which express the function and not to the function itself. An example of symmetry as used in this application is $(p \wedge q) \wedge (p \wedge \bar{q})$. The schema is symmetrical about the endpoint of the p vector with q and $\bar{q}$ forming an opposing couple.

The notion of symmetry used by Scholl et al. is thus completely different from the notion of symmetry used in the current application. For example, $p \vee q$ is symmetrical according to Scholl et al. but not symmetrical according to the current application. Given the difference in the two notions of symmetry, Scholl et al.'s use of symmetry cannot have anticipated the use of symmetry in the current application. Thus Scholl et al. does not teach or suggest "exploiting symmetries in the logical schema" or "sliding symmetrical portion of the logic" in the relevant sense of "symmetry" as required by the the above identified claims.

The binary decision diagrams (BDDs) of the Scholl et al. article represent a depiction of all states that a particular logical function can assume. It is a decision tree. Scholl's use of binary decision diagrams does not teach or suggest "exploiting symmetries in the logical schema" in the relevant sense of "symmetry" described above, as required by the above identified claims.
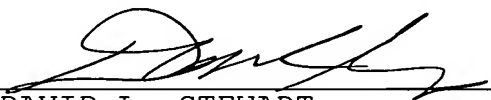
For the reasons indicated, each of the claims is allowable over the article by Scholl et al.

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Accordingly, applicant respectfully request that the Examiner reconsider and withdraw this rejection.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 01-0484 and please credit any excess fees to such deposit account.

Respectfully submitted,

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